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**This is a summary plus of a paper published in Hellenic Journal of Physical Education and Sport Science. You can cite this article as follows:**

V. Barkoukis, L. Lazouras, D. Ourda, D. Galanis and N. Oxizoglou (2009) The role of anticipated regret on the formation of healthy behaviors during physical education classes. *Hellenic J Phys Educ & Sport Sci*, 29 (3): 256-271

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## OMJLN

The aim of the study was to examine whether anticipated regret could predict adolescents' exercise intentions and behaviour, over and above the standard TPB variables. Overall, 209 secondary school students (mean age = 13.70 years, 5 & ± 1.27) completed a questionnaire assessing TPB variables and anticipated regret. One month later students were requested to report their exercise behaviour. The subjects were matched across measurements via school, class, gender and date of birth. Hierarchical regression analyses showed that anticipated regret, alongside with perceived behavioral control, significantly predicted exercise intentions at baseline, whereas attitudes subjective norm and motivation to comply did not. Nonetheless, only intentions and perceived behavioral control significantly predicted exercise behaviour at one month follow-up, but not anticipated regret. These results imply that anticipated regret can contribute in the prediction of intentions towards a healthy behaviour such as exercise. Further, these findings show that the effect of anticipated regret is evident over and above the effect of the core TPB variables. On the other hand, anticipated regret cannot predict actual healthy behavior. The findings of the present study provide theoretical explanations on the formation of exercise intentions and habits during adolescence, and further extend the discussion on the need to broaden the TPB.

: Pd'b Z]O; Theory of planned behavior, anticipated regret, physical activity

\*An extended Summary Plus English version is freely available at [www.hellenicjsport.com](http://www.hellenicjsport.com)

The theory of planned behavior (TPB; Ajzen 1991) has been widely used for the prediction of exercise intentions and behaviour. According to the theory, behaviour is determined by attitudes, normative beliefs, and perceived behavioural control. Researchers and theorists argued that the TPB was superior to other social cognition models applied to health behaviour research. However, recent studies have noted that the predictive capacity of the theory can be significantly improved by the addition of other variables, not accounted in the traditional form of the TPB. For instance, it has been argued that the TPB has been too utilitarian in its focus, attempting to predict and explain decision-making without taking into account the role of affect beliefs, such as anticipated regret (Abraham & Sheeran, 2003, 2004). Studies of adolescent risk taking have shown that adolescents were less likely to engage in risks with a foreseeable negative impact on their affective state. Thus, avoiding anticipated negative emotions can be a valid predictor of future intentions and behaviour. Accordingly, studies on the TPB have shown that the addition of anticipated regret yielded statistically significant increases in explained variance in behavioural intentions regarding unhealthy behaviours (Conner & Armitage, 1998. Elliot, Armitage, & Baughan, 2003). However, there is no evidence on the impact of anticipated regret on the prediction of healthy behaviours such as exercise participation. The aim of the study was to examine whether anticipated regret could predict adolescents' exercise intentions and behaviour, over and above the standard TPB variables.

Overall, 209 secondary school students participated in the study (*Age* = 13.70 years, *SD* ± 1.27). Students were attending coeducational classes of typical schools of an urban city in Northern Greece. A two-wave prospective design was employed. At baseline participants completed a questionnaire assessing TPB variables (intention for exercise participation, perceived behavioural control, attitudes towards exercise, subjective norm and motivation to comply) and anticipated regret (three different statements reflecting anticipated negative emotions; for instance, 'If I do not engage in physical activities in the next month I will feel bad about myself'). One month later students were requested to report their exercise behaviour. The subjects were matched across measurements via school, class, gender and date of birth.

Hierarchical regression analyses were performed to examine whether anticipated regret could contribute in the prediction of exercise intentions and actual exercise behaviour. The results of the analyses showed that anticipated regret, alongside with perceived behavioral control, significantly predicted exercise intentions at baseline, whereas attitudes subjective norm and motivation to comply did not. Nonetheless, only intentions and perceived behavioral control significantly predicted exercise behaviour at one month follow-up, but not anticipated regret (Table 1).

These results imply that anticipated regret can contribute in the prediction of intentions towards a healthy behaviour such as exercise. Further, these findings show that the effect of anticipated regret is evident over and above the effect of the core

Table 1. *Predictors of participation in physical activity*

Step	Variables	$\beta$	AdjR <sup>2</sup>
1	Age	.323***	.139
	Gender	-.260**	
2	Age	.327***	.120
	Gender	-.278**	
	Attitudes (positive outcomes)	-.011	
	Attitudes	.125	
	Subjective norm	.012	
	Subjective norm $\times$ motivation to comply	.040	
	Perceived behavioral control	-.053	
3	Age	.321***	.115
	Gender	-.280**	
	Attitudes (positive outcomes)	-.010	
	Attitudes	.109	
	Subjective norm	.022	
	Subjective norm $\times$ motivation to comply	.031	
	Perceived behavioral control	-.073	
	Anticipatory regret	.052	
4	Age	.336***	.187
	Gender	-.280**	
	Attitudes (positive outcomes)	-.011	
	Attitudes	.093	
	Subjective norm	.014	
	Subjective norm $\times$ motivation to comply	.042	
	Perceived behavioral control	-.241*	
	Anticipatory regret	-.080	
Intention	.381***		

Note. \* $p < .05$ , \*\* $p < .005$ , \*\*\* $p < .001$

TPB variables. On the other hand, anticipated regret cannot predict actual healthy behavior. The findings of the present study provide theoretical explanations on the formation of

exercise intentions and habits during adolescence, and further extend the discussion on the need to broaden the TPB.

## References\*

- Abraham, C., & Sheeran, P. (2003). Acting on intentions: The role of anticipated regret. *British Journal of Social Psychology*, 42, 495–511
- Abraham, C., & Sheeran, P. (2004). Deciding to exercise: The role of anticipated regret. *British Journal of Health Psychology*, 9, 269–278.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211.
- Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology*, 32, 665-683.
- Ajzen, I., & Madden, T.J. (1986). Prediction of goal-directed behavior: Attitudes, intentions, and perceived behavioral control. *Journal of Experimental Social Psychology*, 22, 453-474.
- Armitage, C. J. (2005). Can the theory of planned behavior predict the maintenance of physical activity? *Health Psychology*, 24, 235-245.
- Armitage, C. J., & Conner, M. (2000). Social cognition models and health behaviour: A structured review. *Psychology & Health*, 15, 173-189.
- Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology*, 40, 471–499.
- Armitage, C. J., Conner, M., Loach, J., & Willetts, D. (1999). Different perceptions of control: Applying an extended theory of planned behavior to legal and illegal drug use. *Basic and Applied Social Psychology*, 21, 301-316.
- Barkoukis, V., Ntoumanis, N., & Thøgersen-Ntoumani, C. (in press). Developmental changes in achievement motivation and affect in physical education: Growth trajectories and demographic differences. *Psychology of Sport and Exercise*.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173–1182.
- Charng, H. W, Piliavin, J. A., & Callero, P. L. (1988). Role identity and reasoned action in the prediction of repeated behavior. *Social Psychology Quarterly*, 51, 303-317.
- Chatzisarantis, N. L. D., Frederick, C., Biddle, S. J. H., Hagger, M. S., & Smith, B. (2007). Influences on volitional and forced intentions on physical activity and effort within the theory of planned behaviour. *Journal of Sports Sciences*, 25, 699-709.
- Conner, M., & Armitage, C. J. (1998). Extending the theory of planned behavior: A review and avenues for further research. *Journal of Applied Social Psychology*, 28, 1430–1464.
- Conner, M., Sandberg, T., McMillan, B., & Higgins, A. (2006). Role of anticipated regret, intentions, and intentions stability in adolescent smoking initiation. *British Journal of Health Psychology*, 11, 85-101.
- Elliott, M. A., Armitage, C. J., & Baughan, C. J. (2003). Drivers' compliance with speed limits: An application of the theory of planned behaviour. *Journal of Applied Psychology*, 88, 964-972.
- Everson, E. S., Daley, A. J., & Ussher, M. (2007). The theory of planned behaviour applied to physical activity in young people who smoke. *Journal of Adolescence*, 30, 347-351.
- Fox, K. R., Boutcher, S. H., Faulkner, G. E., & Biddle, S. J. H. (2000). The case for exercise in the promotion of mental health and psychological well-being. In S. J. H. Biddle, K. R. Fox, & S. H. Boutcher (Eds.), *Physical activity and psychological well-being* (pp. 1–9). London: Routledge.

Godin, G., & Shephard, R. J. (1985). A simple method to assess exercise behavior in the community. *Canadian Journal of Applied Sport Sciences*, 10, 141-146.

Hagger, M. S., Chatzisarantis, N. L. D., & Biddle, S. J. H. (2002). The influence of autonomous and controlling motives on physical activity intentions within the Theory of Planned Behaviour. *British Journal of Health Psychology*, 7, 283-297.

Landers, D. M., & Arent, S. M. (2001). Physical activity and mental health. In H. A. Hausenblas, & C. M. Janelle (Eds.), *Handbook of Research in Sport Psychology*, (2nd ed.) (pp. 740–765). New York: John Wiley and Sons.

Loomes, G., & Sugden, R. (1982). Regret theory: An alternative theory of rational choice under uncertainty. *Economic Journal*, 92, 805 - 824.

Martin, J.J., Hodges-Kulinna, P., Cothran, D., Dake, J., & Fahoome, G. (2005). Predicting physical activity and cardiorespiratory fitness in African American children. *Journal of Sport and Exercise Psychology*, 27, 456-469.

Martin, J. J., Oliver, K., & McCaughtry, N. (2007). The theory of planned behavior: predicting physical activity in Mexican american children. *Journal of Sport & Exercise Psychology*, 29, 225-238.

McMillan, B., Higgins, A. R., & Conner, M. (2005). Using an extended theory of planned behaviour to understand smoking amongst schoolchildren. *Addiction Research and Theory*, 13, 293-306.

Morrison, V. & Bennett, P. (2006). *An introduction to health psychology*. Prentice Hall: Pearson.

Motl, R.W., Dishman, R.K., Saunders, R.P., Dowda, M., Felton, G., Ward, D.S., et al.

(2002). Examining social-cognitive determinants of intention and physical activity among Black and White adolescent girls using structural equation modeling. *Health Psychology*, 21, 459-467.

Mummery, W.K., Spence, J.C., & Hudec, J.C. (2000). Understanding physical activity intention in Canadian school children and youth: An application of the theory of planned behavior. *Research Quarterly for Exercise and Sport*, 71, 116-124.

Ntoumanis, N., Barkoukis, V., & Thøgersen-Ntoumani, C. (2009). Developmental trajectories of motivation in physical education: Course, demographic differences, and antecedents. *Journal of Educational Psychology*, 101, 717-728.

Pallant, J. (2005). *SPSS survival manual: A step by step guide to data analysis using SPSS version 12* (2<sup>nd</sup> ed.). Berkshire: Open university/McGraw-Hill.

Perugini, M., & Bagozzi, R. P. (2001). The role of desires and anticipated emotions in goal-directed behaviours: Broadening and deepening the theory of planned behaviour. *British Journal of Social Psychology*, 40, 79–98.

Raden, D. (1985). Strength-related attitude dimensions. *Social Psychology*

*Quarterly*, 48, 312-330.

Rivis, A., & Sheeran, P. (2003). Descriptive norms as an additional predictor in the theory of planned behaviour: A meta-analysis. *Current Psychology*, 22, 218-233.

Sheeran, P., & Orbell, S. (1999). Augmenting the theory of planned behavior: Roles for anticipated regret and descriptive norms. *Journal of Applied Social Psychology*, 29, 2107–2142.

Symons Downs D., Graham, G. M., Yang, S., Bargainnier, S., & Vasil, J. (2006). Youth exercise intention and past exercise behaviour: Examining the moderating influences of sex and meeting exercise recommendations. *Research Quarterly for Exercise & Sport*, 77, 91-99.

Ziegelmann, J., Luszczynska, A., Lippke, S., & Schwarzer, R. (2007). Are goal intentions or implementation intentions better predictors of health behavior? A longitudinal study in orthopedic rehabilitation. *Rehabilitation Psychology*, 52 (1), 97-102.

Xiang, P., McBride, R., Guan, J., & Solmon, M. (2003). Children's motivation in elementary physical education: a longitudinal study. *Research Quarterly for Exercise and Sport*, 75, 71-80.

Submitted: 12-3-2009

Accepted: 9-8-2009

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- References have been cited in the Greek (printed) version of the manuscript